CLAIMS

I claim:

1. (Canceled) An interleaved wet friction plate braking device ~~in which the~~ having plates that can be clampingly engaged to ~~synchronize accelerate or~~ decelerate a load, means for cooling the friction surfaces of the plates using a multiplicity of external closely confined pumping impeller vanes on the outside diameter of the rotating plates to impact a stationary fluid reservoir and impart inward flow thru passages to cool and lubricate the sliding friction surfaces during braking ~~rotational~~ operation.

2. (Canceled) The device as set forth in Claim 1 in which inward flow occurs during a portion of a revolution of rotation and outward flow occurs during the remainder of the revolution to provide inward and outward friction surface cooling during a revolution cycle.

3. (Canceled) A wet friction plate ~~comprising~~ comprised of a core with attached annular friction discs, the core having a multiplicity of pumping impeller vanes extending from its outer diameter acting as pump impellers in cooperation with stationary mating side plates to ingest coolant and impart inward flow thru ~~the friction surface grooving~~ grooves to provide cooling during rotation of the friction plate.

4. (Canceled) The device as set forth in Claim 3 in which an individual pressure chamber is defined by the stationary confining mating side plate walls adjacent to ~~the~~ an impeller vane, the impeller vane pumping surface and the friction plate core outside diameter between the pumping surface of an impeller and the back side of the adjacent leading impeller vane.

5. (Canceled) The device as set forth in Claim 3 in which the individual pressure chamber

between the impelling surface and the back of the adjacent ahead leading vane may form a circular chamber for a large portion of its ~~periphy~~ periphery.

6. (Canceled) The device as set forth in Claim 3 in which each impeller vane has a leading outer tip and following backward or trailing slant or curvature with respect to the direction of rotation of the rotating disc.

7. (Canceled) The device as set forth in Claim 3 in which coolant accelerated by the leading pumping surface of an impeller vane may follow the friction plate core outer diameter between vanes and abut a decelerating cavity formed in the rear surface of the leading adjacent impeller vane to discharge inwardly thru ~~the friction surface grooving~~ a groove to cool and lubricate the friction surfaces.

8. (Canceled) An interleaved friction plate braking device in which the plates can be clampingly engaged to ~~synchronize, accelerate or~~ decelerate a load, means for cooling the friction surfaces using a multiplicity of external closely confined vanes on the outside diameter of the rotating plates to ingest coolant from ~~an enclosing~~ a stationary housing reservoir or an external supply source directed into the pressure chamber inlets described as two adjacent vanes, and their mating stationary side walls

9. (Canceled) The device as set forth in Claim 4 in which the inlet area for an individual pressure chamber is made up of the space between two stationary adjacent impeller vane plate side walls and the outer peripheral distance between adjacent impellers tips.

10. (New) An interleaved wet friction plate braking device comprising,

a stationary housing which carries a plurality of annular. stationary brake plates and which has a stationary fluid reservoir containing coolant;

a rotatable shaft, a plurality of annular friction plates mounted to rotate with the shaft, said friction plates having friction lining attached thereto, the friction lining having grooves;

an actuator adapted to axially press the friction plates into braking engagement with the brake plates;

a plurality of impeller vanes extending from the outer periphery of the friction plates and adapted to impact the stationary reservoir during a part of the rotation of the friction plates,

the brake plates having a diameter greater than that of the friction plates including the impeller vanes but disposed axially closely adjacent to the vanes,

wherein, during said part of the rotation of the friction plates, the brake plates, in combination with an area rotationally between adjacent impeller vanes, define a pressure chamber so as to impart inward flow of coolant through the grooves of the friction lining as the impeller vanes pass through the coolant in the stationary reservoir, and wherein during a remaining part of the rotation of the friction plates, coolant is permitted to flow ~~rapidly~~ radially outward by centrifugal force.